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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,721	04/19/2006	Stephane Girois	FR-AM 1966NP	1905

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ARKEMA INC.
PATENT DEPARTMENT - 26TH FLOOR
2000 MARKET STREET
PHILADELPHIA, PA 19103-3222

EXAMINER	
ANTHONY, JOSEPH DAVID	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,721	GIROIS ET AL.	
	Examiner	Art Unit	
	Joseph D. Anthony	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/28/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 14 and 15 are deemed to be indefinite because the preamble of both claims states: "A substantially metal free stabilizing composition for chlorine-containing polymers:", but the composition set forth in the body of each claim requires a co-stabilizer selected from components such as layered lattice compounds, zeolite compounds, and/or metal soaps. Said co-stabilizers read on metal containing compounds.

Independent claims 14 and 15 are also deemed to be indefinite because the preamble of each claim lacks the inclusion of a transitional word/phrase such as "comprising", "consisting essentially of", or "consisting of".

Independent claims 14 and 15 are also deemed to be indefinite because R_2 is at first defined as selected from **–H** or **$-COR_3$**; but then later in the claims applicant has the following limitation: "R_1 and R_2 are linked by a covalent bond when R_1 is –CH=CH- and R_2 is **–CO**;".

Claims 16-31 are rejected here for being dependent on a rejected base claim.

Double Patenting

Applicant is advised that should claim 14 be found allowable, claim 15 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-16, 18-19, 22, 24-27 and 29-31 are rejected under 35 U.S.C. 102(b) as anticipated by applicant cited Article entitled: Aromatic hydrazides as stabilizers for rigid PVC against thermo-oxidative degradation", by Nadia Ahmed Mohamed.

Mohamed teaches aromatic hydrazides as stabilizers for rigid PVC against thermo-oxidative degradation. The aromatic hydrazides, as set forth in table 1, are deemed to fall within applicant's claimed hydrazides of the listed formula as set forth in independent claims 14 and 15. Mohamed further teaches a synergistic effect is achieved when the materials under investigation are blended in various molar ratios with either cadmium-barium-zinc stearate or dibasic lead carbonate, see abstract. Applicant's claims are deemed to be anticipated over Mohamed's disclosure, as set forth in sections 3.4-3.5, wherein PVC polymers are set forth containing aromatic hydrazides as stabilizers and either cadmium-barium-zinc stearate or dibasic lead carbonate.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant cited Article entitled: Aromatic hydrazides as stabilizers for rigid PVC against thermo-oxidative degradation", by Nadia Ahmed Mohamed.

Mohamed has been described above and differs from applicant's claimed invention only in that there is not a direct teaching to where the stabilized rigid PVC is in the form of a polymer pipe or pipe fitting. To form Mohamed's stabilized rigid PVC into the form of polymer pipes or pipe fitting would have been extremely obvious to one having ordinary skill in the art since it would have been at once envisaged since PVC pipes and PVC pipe fitting are so well known in commerce.

Claims 14-15, 22-27 and 29-31 are rejected under 35 U.S.C. 102(b) as anticipated by Minagawa et al. U.S. Patent Number 4,369,735.

Minagawa et al. teach light stabilizers for synthetic resin compositions, such as polyvinyl chloride resin, and synthetic resin compositions containing such stabilizers comprising: (1) at least one hindered heterocyclic amine having the formula of (I); (2) at least one heterocyclic acid hydrazide having the formula of (II), such as maleic hydrazide (cyclic) and its derivatives. The heterocyclic acid hydrazide, which alone is not a light-stabilizer, synergizes the stabilizing effectiveness of the hindered heterocyclic amine, see abstract, and columns 45-61. Applicant's claims are deemed to be anticipated over Examples 55 and 58 which teach polyvinyl chloride resin compositions in the form of sheets which comprises: Polyvinyl chloride resin, Dioctylphthalate, Ca stearate, Zn stearate, Heterocyclic amine listed in Table VI and Heterocyclic hydrazide as listed in Table VI.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minagawa et al. U.S. Patent Number 4,369,735.

Minagawa et al. differ from applicant's claimed invention only in that there is not a direct teaching to where the stabilized polyvinyl chloride resin composition is in the form of a polymer pipe or pipe fitting. To form Minagawa et al.'s stabilized polyvinyl chloride resin compositions into the form of polymer pipes or pipe fitting would have been extremely obvious to one having ordinary skill in the art because: 1) Minagawa et al. directly discloses that the synthetic polymers according to their invention can be in any

physical form, such as molded articles, see column 61, lines 48-50, and 2) polymer pipes or pipe fitting would have been at once envisaged since PVC pipes and PVC pipe fitting are very well articles used in commerce.

Claims 14-15 and 21-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann et al. U.S. Patent Number 3,509,093 optionally in view of Minagawa et al. U.S. Patent Number 4,369,735 for claim 23.

Lehmann et al. teach light and heat stabilization of higher molecular weight chlorine containing polymers by the addition of a stabilizing amount or an organic hydrazide according to the listed formula of ROCO-X-CONHNH$_2$ wherein R is alkyl, cycloalkyl, aryl, aralkyl, hydroxyalkyl or halogenoalkyl and X is an aliphatic, cycloaliphatic, aromatic or araliphatic group or one of the aforesaid groups containing a hetro atom, see abstract. Lehmann et al's hydrazides thus read on applicant's hydrazides when applicant's R_1 group is a -CH=CH-C(O)-OR$_4$ group or when applicant's R_1 group is a phenyl group substituted with a COOR group. Lehmann et al. further discloses that the stabilizing activity of the hydrazide compounds can be considerably improved in combination with organic phosphites, epoxides, such as epoxides of vegetable oils, organic phosphates and/or commercial metal containing stabilizers, wherein the metal can be calcium, zinc, barium etc., see column 2, lines 10-28 and the examples such as example 9.

Lehmann et al. differs from applicant's claimed invention in that there does not seem to be a direct teaching (i.e. by way of an example) to where the hydrazide species

used in combination with a PVC polymer and a co-stabilizer is a hydrazide species claimed by applicant. It would have been obvious to one having ordinary skill in the art to use the broad disclosure of hydrazide stabilizers, as set forth in Lehmann et al's said formula, as strong motivation to actually use a hydrazide species that falls within applicant's claimed hydrazide species since Lehmann et al's hydrazides read on applicant's hydrazides when applicant's R_1 group is a -CH=CH-C(O)-OR_4 group or when applicant's R_1 group is a phenyl group substituted with a COOR group.

Lehmann et al.'s claim 28 further differs from applicant's claimed invention only in that there is not a direct teaching to where the stabilized PVC is in the form of a polymer pipe or pipe fitting. To form Lehmann et al.'s stabilized PVC into the form of polymer pipes or pipe fitting would have been extremely obvious to one having ordinary skill in the art since it would have been at once envisaged since PVC pipes and PVC pipe fitting are so well known in commerce.

Optionally, Lehmann et al. can be taken in view of Minagawa et al. since Minagawa et al. provides as strong motivation to use calcium stearate as an additional stabilizer species with hydrazides since calcium stearate is directly taught in Minagawa et al.'s examples 55 and 58.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minagawa et al. U.S. Patent Number 4,369,735 in view of Lehmann et al. U.S. Patent Number 3,509,093.

Minagawa et al. and Lehmann et al. have both been described above. Minagawa et al differ from applicant's claimed invention in that there does not seem to be a direct disclosure to applicant's additional co-stabilizer species as set forth in claim 21.

It would have been obvious to one having ordinary skill in the art to use the direct disclosure of Lehmann et al. wherein epoxidised soya oil is taught to form synergistic stabilizing compositions with hydrazides for polymers, such as PCV polymers, as strong motivation to actually add epoxidised soya oils to the hydrazide containing stabilizers composition as taught by Minagawa et al. for the known benefits that such co-stabilizers would confer.

Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant cited Article entitled: Aromatic hydrazides as stabilizers for rigid PVC against thermo-oxidative degradation", by Nadia Ahmed Mohamed in view of Lehmann et al. U.S. Patent Number 3,509,093 and optionally in view of Minagawa et al. U.S. Patent Number 4,369,735 for claim 23.

Mohamed, Minagawa et al. and Lehmann et al. have all been described above. Mohamed differs from applicant's claimed invention in that there does not seem to be a direct disclosure to applicant's additional co-stabilizer species as set forth in claims 21 and 23.

It would have been obvious to one having ordinary skill in the art to use the direct disclosure of Lehmann et al. wherein epoxidised soya oil is taught to form synergistic stabilizing compositions with hydrazides for polymers, such as PCV polymers, as strong

motivation to actually add epoxidised soya oils to the hydrazide containing stabilizers composition as taught by Mohamed for the known benefits that such co-stabilizers would confer. Likewise, Lehmann et al.'s disclosure to adding commercial metal containing stabilizers, wherein the metal can be calcium, zinc, barium etc., provides motivation to add a calcium stearate as an additional co-stabilizer to Mohamed's composition. Optionally, Minagawa et al. can be used as strong motivation to use calcium stearate as an additional stabilizer species with hydrazides since calcium stearate are directly taught in Minagawa et al.'s examples 55 and 58.

Claims 14-20, 24, and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP62197440A as abstracted by the English language JP Abstract in light of applicant's own description of JP62197440A as set forth on page 1, lines 28-30 of applicant's specification.

JP62197440A teaches molding which does not cause the bleeding of metallic elements, has excellent chemical resistance and fabricability, is not discolored and is tough and inexpensive, by stabilizing a chlorine-containing resin with a hydrazide and molding it into a desired shape. The compositions comprise: 100pts.wt. chlorine-containing resin such as a PVC resin, a chlorinated or ethylenated vinyl chloride resin, etc. which is blended with 0.5 parts by weight to 5.0 parts by weight **hydrazine having the formula $RCONHNH_2$ wherein R is an alkyl (C_1 to C_{20}) or an aryl** and optionally 0. 5W50 pts.wt, at least one resin selected from the group consisting of an acrylic-modified modifier, an acrylonitrile/(butadiene/)styrene copolymer, a methyl

methacrylate/butadiene/styrene copolymer, an ethylene/vinyl acetate copolymer, a chlorinated PE, a fluororesin, etc., 0.01 parts by weight 3.0. parts by weight carbon black and optionally an epoxy compound, an organic phosphite ester, etc. to obtain a stabilized chlorine-containing resin. The resin is molded into a desired shape by calendering, pressing, extrusion; etc..

JP62197440A may differ from applicant's claimed invention in that it is unclear if there is a direct teaching (i.e. by way of an example) to a PVC resin composition that comprises: 1) hydrazine having the formula $RCONHNH_2$ wherein R is an alkyl (C_1 to C_{20}) or an aryl, and 2) an epoxy compound, or an organic phosphite ester. It would have been obvious to one having ordinary skill in the art to make a PVC resin composition that actually comprises 1) hydrazine having the formula $RCONHNH_2$ wherein R is an alkyl (C_1 to C_{20}) or an aryl, and 2) an epoxy compound, or an organic phosphite ester since such is directly suggested by the English language abstract of said JP reference. Furthermore, to form JP's stabilized polyvinyl chloride resin compositions into the form of polymer pipes or pipe fitting would have been extremely obvious to one having ordinary skill in the art because: 1) the English language abstract of JP directly discloses that the PVC resins according to the invention can be molded into any desired shape, and 2) polymer pipes or pipe fitting would have been at once envisaged since PVC pipes and PVC pipe fitting are very well articles used in commerce.

Claims 21-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP62197440A as abstracted by the English language JP Abstract in light of

applicant's own description of JP62197440A as set forth on page 1, lines 28-30 of applicant's specification, JP taken in view of either Lehmann et al. U.S. Patent Number 3,509,093 or Minagawa et al. U.S. Patent Number 4,369,735.

JP differs from applicant's claimed invention in that it is unclear from the English language abstract if applicant's said co-stabilizers are disclosed in the main body of the JP reference.

Lehmann et al and Minagawa et al. have both been described above. It would have been obvious to one having ordinary skill in the art to use the disclosure of Lehmann et al to the inclusion of epoxidised vegetable oils, such as epoxidised soya oil, and/or organic phosphates and/or commercial metal containing stabilizers, wherein the metal can be calcium, zinc, barium etc., as strong motivation to actually add epoxidised vegetable oils, such as epoxidised soya oil, and/or organic phosphates and/or commercial metal containing stabilizers, wherein the metal can be calcium, zinc, barium etc., to the stabilized PVC composition as taught by JP for the additional benefits that such co-stabilizers would impart. In the alternative, it would have been obvious to one having ordinary skill in the art to use the disclosure of Minagawa et al. to the inclusion of Ca stearate and Zn stearate as co-stabilizers with hydrazide for PVC resins, see examples 55 and 58, as strong motivation to actually add Ca stearate and Zn stearate as co-stabilizers to the stabilized PVC composition as taught by JP for the additional benefits that such co-stabilizers would impart.

Prior-Art Cited But Not Applied

Any prior-art reference which is cited on FORM PTO-892 but not applied, is cited only to show the general state of the prior-art at the time of applicant's invention.

Examiner Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (571) 272-1117. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571) 272-1498. The centralized FAX machine number is (571) 273-8300. All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner.

/Joseph D. Anthony/
Primary Patent Examiner
Art Unit 1796
03/10/09